***In the Specification***

Please replace the abstract with the amended abstract, as follows:

Methods and systems for generating calibrated optical pulses in a QKD system. The method includes calibrating a variable optical attenuator (VOA) by first passing radiation pulses of a given intensity and pulse width through the VOA for a variety of VOA settings. The method further includes resetting the VOA to ~~maximum~~ minimum attenuation and sending through the VOA optical pulses having varying pulse widths. The method also includes determining the power needed at the receiver in the QKD system, and setting the VOA so that optical pulses generated by the optical radiation source are calibrated to provide the needed average power. Such calibration is critical in a QKD system, where the average number of photons per pulse needs to be very small-- i.e., on the order of 0.1 photons per pulse—in order to ensure quantum security of the system.

Please replace the second paragraph of the "Summary of the Invention" section with the amended paragraph as follows:

A first aspect of the invention is a method of generating calibrated optical pulses for a quantum key distribution (QKD) system. The method includes generating first optical pulses having a fixed pulse width and a fixed power using an optical radiation source, and passing the first pulses through a variable optical attenuator (VOA) for different VOA settings. The transmitted powers of the first optical pulses are related to the respective VOA settings and the information is stored in the controller, e.g., as a look-up table. The method also includes setting the VOA to a ~~maximum~~ minimum attenuation by operation of the controller, generating second optical pulses having varying pulse widths using the optical radiation source, and sending the second pulses through the VOA. The method further includes relating respective transmitted powers of the second optical pulses to the respective varying pulse widths and storing the results in the controller. The method additionally

includes determining an amount of average power needed to be incident a receiver of the QKD system, setting the VOA to a calibrated setting that would result in the receiver receiving the needed amount of average power via third radiation pulses, and then sending the third optical pulses from an optical radiation source through the VOA to create a calibrated set of optical pulses.

Please replace the third paragraph on page 5 with the amended paragraph as follows:

A variable attenuator (VOA) 40 is optically coupled to the optical radiation source and is arranged to receive and selectively attenuate optical pulses 32 to form attenuated pulses 32'. A driver 44 is operatively connected to VOA 40. Driver 44 drives or otherwise sets VOA 40 to a select level of attenuation $A_i$ within the range of possible attenuations of the VOA. In an example embodiment, VOA 40 includes a no-attenuation or a substantially no-attenuation setting $\underline{A_{MIN}}$.

Please replace the fourth paragraph on page 5 with the amended paragraph as follows:

In example embodiments, VOA 40 is any one of a number of known VOAs, such as an electronically controlled LCD shutter or a mechanically controlled coupler, such as an optical fiber coupler that sets the alignment between ~~to~~ two optical fibers to correspond to a given level of attenuation.

Please replace the second paragraph on page 7 with the amended paragraph as follows:

With continuing reference to FIG. 1 and also to FIG. 2 and flow diagram 200 therein, the general method of the present invention is now described. In 202, optical channel 16 is disconnected and power meter 70 is optically coupled to channel portion 16A at end 20. In 204, controller 80 sends a control signal to driver 44, which

in turn communicates with VOA 40 to set the VOA to its ~~maximum~~ minimum attenuation ~~$A_{MAX}$~~ $\underline{A_{MIN}}$. In 206, controller 80 sends a control signal to optical radiation source 30 which sets the optical power output to a high, fixed power (E.g., maximum power $P_{MAX}$) and sets the pulse width w to obtain repeatable measurements on optical power meter 70. Thus, the pulses emanating from the optical radiation source have maximum power, $P_{MAX}$ and thus the maximum number of average photons per pulse $m_{MAX}$.

Please replace the third paragraph on page 7 with the amended paragraph as follows:

In 208, VOA 40 is adjusted (e.g., swept or stepped) over a range of attenuation, e.g., from its maximum attenuation $A_{MAX}$ to its minimum attenuation $A_{MIN}$. In 210, as VOA 40 is adjusted, the output optical power $P_T$ of the optical pulses 32' transmitted by VOA 40 is measured by power meter 70 for each VOA setting. Power meter ~~50~~ 70 produces electrical signals corresponding to the measured power. The electrical signals are sent to controller 80. Also in 210, the electrical feedback from VOA 40 as measured by electrical meter 50 and that corresponds to the VOA settings is sent to controller 80 via electrical signals. Further in 210, the information in the electrical signals corresponding to the measured optical power transmitted by the VOA and the VOA settings are stored (recorded) in controller 80.

Please replace the fourth paragraph on page 7 with the amended paragraph as follows:

In 212, controller 80 generates a table or curve that relates the relative power transmitted by the VOA 40 to the VOA position or setting. In 214, controller 80 sends a control signal to driver 44 that causes driver 44 to set VOA 40 to its ~~maximum~~ minimum attenuation ~~$A_{MAX}$~~ $\underline{A_{MIN}}$. In 216, controller 80 sends a control signal to optical radiation source 30 to cause the optical radiation source to emit optical pulses that

vary in pulse width w over a range of pulse widths that vary from a minimum to a maximum usable pulse width.

Please replace the third full paragraph on page 10 with the amended paragraph as follows:

In 412, if $m < m_{TH}$ has the calibrated value $m_C$ (or if PA has the ~~calibrate~~ calibrated average power value $P_C$), then the re-calibration process is terminated. If $m \neq m_C$ (or $P_A \neq P_C$), then the process returns to 404 and is repeated until $m = m_C$ (or $P_A = P_C$).